**WHAT IS CLAIMED IS:**

1. A composition comprising an apoprotein polypeptide of between about 190 amino acids and about 400 amino acids, which apoprotein polypeptide comprises a lyase domain.

2. The composition of claim 1, wherein the apoprotein polypeptide is selected from the group consisting of a plant apoprotein, an algal apoprotein, and a cyanobacterial apoprotein.

3. The composition of claim 1, wherein the apoprotein polypeptide consists of about 390 amino acids.

4. The composition of claim 1, wherein the apoprotein polypeptide consists of about 200 amino acids.

5. The composition of claim 4, wherein the aopoprotein protein is as shown in SEQ ID NO: 9.

6. The composition of claim 1, wherein the apoprotein protein consists of a lyase domain.

7. The composition of claim 1, wherein the apoprotein polypeptide is from *Synechocystis* sp.

8. The composition of claim 7, wherein the apoprotein polypeptide is Cph2.

9. The composition of claim 1, wherein the apoprotein is covalently linked to a bilin to form a fluorescent adduct.

10. The composition of claim 9, wherein the bilin is a tetrapyrrole.

11. The composition of claim 10, wherein the bilin is phycoerythrobilin.

12. The composition of claim 9, wherein the fluorescent adduct is linked to a biomolecule.

13. The composition of claim 12, wherein the biomolecule is selected from the group consisting of a protein, a carbohydrate, a lipid, and a nucleic acid.

14. The composition of claim 13, wherein the biomolecule is a nucleic acid.

15. .The composition of claim 13, wherein the biomolecule is a protein.

16. The composition of claim 15, wherein the protein is an antibody.

17. A method of detecting the presence of a biomolecule in a sample, the method comprising:

providing a sample comprising a biomolecule linked to a fluorescent adduct consisting of a bilin and an apoprotein of between about 190 amino acids and about 400 amino acids, which apoprotein polypeptide comprises a lyase domain;

contacting the sample with light which causes the fluorescent adduct to emit light;

detecting the emitted light, thereby detecting the presence of the biomolecule.

18. The method of claim 17 , wherein the step of contacting the sample with light includes contacting the sample with light having a wavelength of about 570 nm.

19. The method of claim 17, wherein the step of detecting the emitted light includes detecting light having a wavelength of about 590 nm.

20. The method of claim 17, wherein the apoprotein polypeptide is selected from the group consisting of a plant apoprotein, an algal apoprotein, and a cyanobacterial apoprotein.

21. The method of claim 17, wherein the apoprotein polypeptide consists of a lyase domain.

22. The method of claim 17, wherein the apoprotein polypeptide consists of about 390 amino acids.

23. The method of claim 17, wherein the apoprotein polypeptide consists of about 200 amino acids.

24. The method of claim 23, wherein the aopoprotein is a shown in SEQ ID NO: 9.

25. The method of claim 17, wherein the apoprotein polypeptide is from *Synechocystis* sp.

26. The method of claim 25, wherein the apoprotein polypeptide is Cph2.

27. The method of claim 17, wherein the bilin is a tetrapyrrole.

28. The method of claim 27, wherein the bilin is phycoerythrobilin.

29. The method of claim 17, wherein the biomolecule is selected from the group consisting of a protein, a carbohydrate, a lipid, and a nucleic acid.

30. The method of claim 29, wherein the biomolecule is a nucleic acid.

31. The method of claim 29, wherein the biomolecule is a protein.

32. The method of claim 31, wherein the protein is an antibody.

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